

What is claimed is:

1. A method comprising:
receiving in an operating system runtime environment a firmware code update to be implemented in a multiprocessor system;
storing the firmware code update;
issuing an interprocessor interrupt to each processor of the multiprocessor system;
storing state information for each processor of the multiprocessor system; and
transitioning from the operating system runtime environment to a pre-operating system environment.
2. A method as defined by claim 1 further comprising:
implementing the firmware code update in the pre-operating system environment;
reading the state information for each processor of the multiprocessor system;
and
restoring the state information to each processor of the multiprocessor system, thereby transitioning from the pre-operating system environment to the operating system runtime environment.
3. A method as defined by claim 2, further comprising:
determining, in the pre-operating system environment, if a processing unit has been instructed to carry out a warm start; and
determining, in the pre-operating system environment, if a predefined storage location includes the firmware code update.
4. A method as defined by claim 2, further comprising determining if the state information passes an integrity check.
5. A method as defined by claim 2, further comprising allocating memory for storage of the firmware code update and the state information.

6. An article of manufacture comprising a machine-accessible medium having a plurality of machine accessible instructions that, when executed, cause a machine to:

receive in an operating system runtime environment a firmware code update to be implemented in a multiprocessor system;

store the firmware code update;

issue an interprocessor interrupt to each processor of the multiprocessor system;

store state information for each processor of the multiprocessor system; and

transition from the operating system runtime environment to a pre-operating system environment.

7. An article of manufacture as defined by claim 6, wherein the plurality of machine accessible instructions, when executed, cause the machine to:

implement the firmware code update in the pre-operating system environment;

read the state information for each processor of the multiprocessor system; and

restore the state information to each processor of the multiprocessor system, thereby transitioning from the pre-operating system environment to the operating system runtime environment.

8. An article of manufacture as defined by claim 7, wherein the plurality of machine accessible instructions, when executed, cause the machine to:

determine, in the pre-operating system environment, if a processing unit has been instructed to carry out a warm start; and

determine, in the pre-operating system environment, if a predefined storage location includes the firmware code update.

9. An article of manufacture as defined by claim 7, wherein the plurality of machine accessible instructions, when executed, cause the machine to determine if the state information passes an integrity check.

10. An article of manufacture as defined by claim 7, wherein the plurality of machine accessible instructions, when executed, cause the machine to allocate memory for storage of the firmware code update and the state information.

11. A method comprising:
 - receiving in an operating system runtime environment a firmware code update to be implemented in a multiprocessor system;
 - storing the firmware code update in a first defined storage location;
 - issuing an interprocessor interrupt to each processor of the multiprocessor system;
 - storing operating system runtime state information for each processor of the multiprocessor system in a second defined storage location;
 - transitioning from the operating system runtime environment to a pre-operating system environment;
 - determining if a warm start has been requested;
 - reading the firmware code update from the first defined storage location;
 - implementing the firmware code update in the pre-operating system environment;
 - reading from the second defined storage location the operating system runtime state information for each processor of the multiprocessor system; and
 - restoring the operating system runtime state information to each processor of the multiprocessor system, thereby transitioning from the pre-operating system environment to the operating system runtime environment.
12. A method as defined by claim 11, wherein transition from the operating system runtime environment to the pre-operating system environment comprises a processor-only reset.
13. A method as defined by claim 11, comprising performing an integrity check on the operating system runtime state information and the firmware code update.
14. A method as defined by claim 11, wherein the firmware code update is downloaded from an Internet website.
15. A method as defined by claim 11, comprising allocating a memory location to define the first defined storage location and writing a pointer to the first defined storage location into the second defined storage location.

16. An article of manufacture comprising a machine-accessible medium having a plurality of machine accessible instructions that, when executed, cause a machine to:

receive in an operating system runtime environment a firmware code update to be implemented in a multiprocessor system;

store the firmware code update in a first defined storage location;

issue an interprocessor interrupt to each processor of the multiprocessor system;

store operating system runtime state information for each processor of the multiprocessor system in a second defined storage location;

transition from the operating system runtime environment to a pre-operating system environment;

determine if a warm start has been requested;

read the firmware code update from the first defined storage location;

implement the firmware code update in the pre-operating system environment;

read from the second defined storage location the operating system runtime state information for each processor of the multiprocessor system; and

restore the operating system runtime state information to each processor of the multiprocessor system, thereby transitioning from the pre-operating system environment to the operating system runtime environment

17. An article of manufacture as defined by claim 16, wherein the plurality of machine accessible instructions, when executed, cause the machine to transition from the operating system runtime environment to the pre-operating system environment by issuing a processor-only reset.

18. An article of manufacture as defined by claim 16, wherein the plurality of machine accessible instructions, when executed, cause the machine to perform an integrity check on the state information and the firmware code update.

19. An article of manufacture as defined by claim 16, wherein the plurality of machine accessible instructions, when executed, cause the machine to download the firmware code update from an Internet website.

20. An article of manufacture as defined by claim 16, wherein the plurality of machine accessible instructions, when executed, cause the machine to allocate a memory location for storage of the state information and a pointer to the firmware code update.